

$$\log 2$$

$$\log 4 = \log 2^2$$

$$\log 5$$

$$\log 25 = \log 5^2$$

$$\underline{\log 3}$$

$$\underline{\log 9} = \log 3^2$$

$$\log 2 + \log 2 = \log 4$$

$$\log 2^2$$

$$\log(2)(2)$$

$$2 \log 2 = \log 4 = \log 2^2$$

$$2 \log 3 = \log 9 = \log 3^2$$

$$2 \log 5 = \log 25 = \log 5^2 = 2 \log 5$$

$$\log 2 \approx .3 \quad \log 4 \approx .6$$

$\times 2$

$$\log 3 \approx .48 \quad \log 9 \approx .96$$

$\times 2$

$$\log 5 \approx .7 \quad \log 25 \approx 1.4$$

$\times 2$

$$\log 3 \quad \log 27 = \log 3^3 = 3 \log 3$$

$$\log 2 \quad \log 8 = \log 2^3 = 3 \log 2$$

$$\log 5 \quad \log 125 = \log 5^3 = 3 \log 5$$

$$\log_{\textcircled{2}} 32 = 5$$

base

$$\log_{\textcircled{4}} 4 = 1$$

base

$$\log_{\textcircled{3}} 27 = \textcircled{3}$$

base

$$\log_2 1 = 0$$

exponent

$$\log_3 \frac{1}{9} = -2$$

$$\log_{\frac{1}{2}} 4 = -2$$

~~$$\log_{\sqrt{3}} 3 = \frac{1}{2}$$~~

$$\log 1000 = 3$$

$$\log_{\textcircled{3}} 81 = 4$$

$$3^{\boxed{4}} = 81$$

$$\log_3 \frac{1}{81} = -4$$

$$3^{\boxed{-4}} = \frac{1}{81}$$

$$\sqrt[4]{3^{\textcircled{\frac{1}{4}}}} = \frac{1}{81}?$$

Exponent  
↓

$$\log_2 8 = 3$$

$$\log_5 5 = 1$$

$$\log_{121} 1 = 0$$

$$\log_{\frac{1}{2}} 16 = -4$$

HW p. 384  
31-43  
odd

$$\log_{\sqrt{3}} 3 \neq \frac{1}{2}$$

$$(\sqrt{3})^{\frac{1}{2}} = (3^{\frac{1}{2}})^{\frac{1}{2}} = 3^{\frac{1}{4}}$$

$$\log_{\frac{1}{2}} 4 = -2$$

$$\left(\frac{1}{2}\right)^{-2} = \left(\frac{1}{\frac{1}{2}}\right)^2 = 2^2 = 4$$

$$(2)^2 = 4$$

$$\log_3 \frac{1}{9} = -2$$

$$3^{\boxed{-2}} = \frac{1}{3^2} = \frac{1}{9}$$

$$\log_2 1 = 0$$

$$2^0 = 1$$

$$\log_3 27 = 3$$

$$3^3 = 27$$

$$\log_4 4 = 1$$

$$4^1 = 4$$

$$\log_2 32 = 5$$

$$2^5 = 32$$

$$\log x^n = n \log x$$

$$\log xy = \log x + \log y$$

$$\log \frac{x}{y} = \log x - \log y$$

log

